

**SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR THE
DISPLAY AND VISUALLY DRIVEN DEFINITION OF TOMOGRAPHIC
IMAGE PLANES IN THREE-DIMENSIONAL SPACE.**

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ABSTRACT OF THE DISCLOSURE

Apparatuses, methods and computer program products for scan plane geometry definition in tomographic data acquisition via an interactive three-dimensional (3-D) graphical operator interface. The apparatuses, methods and computer program products are initially proposed for use in cardiac MRI, but have a much broader area of application. The apparatuses and methods utilize 3-D computer graphics aspect views of slice planes to show a new scan, represented as semi-transparent uniformly-colored planes. Intersections of these planes with opaque texture-mapped gray-level views of previously acquired images enable the orientation of a new scan to be viewed in a much more intuitive fashion. Advantageously, the apparatuses and methods of the present invention provide for more efficient elimination of positional ambiguity that is often associated with conventional 2-D intersection line views. In addition, any misregistration between localizer scans can be detected immediately in the integrated 3-D display by misalignment of anatomy in the previously acquired image planes.